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Efficiency of Teachers Training Courses Development based on the Concepts of Knowledge Management to Enhance Efficient Multimedia Producing about Local Culture in Surin Province: The Case Study in Thailand

Suwanna Rattanathamtee

Faculty of Education, Surindra Rajabhat University, 186 Surin-Prasat Road, Tambon Nok-mueang,
Mueang Surin, Surin Province, 32000, Thailand

E-mail: rattanathamtee@yahoo.com

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Abstract

The research aims at developing and studying the efficiency of teachers training courses, contributing factors, and obstacles. Samples were 15 teachers, 6 people who involve in education, and 150 students. The efficiency of five training courses was 86.67/89.33, over the standard of 80/80. The teachers had more knowledge with the statistic significance of .05 and with high ability in multimedia producing. The teachers and the students were strongly satisfied with using the multimedia. The people who involve in education considered the benefits of the courses to be at the highest level. The contributing factors were support from school administrators, the teachers' determination to improve their jobs, and the students' learning motivation. The obstacles were teachers' different technology proficiency and background and heavy working loads.

Keywords: teacher training course, Knowledge Management, efficiency, multimedia, local culture

1. Background

According to the evolution of information technology (IT) in our society, teachers who are important to the standard of education and students are in the need to improve themselves to catch up with this. The National Education Act B.E. 2542 (1999) and Amendment B.E. 2545 (2002) Section 4 requires that student-centered learning, real experiences, and practice are emphasized. Teachers, instead of being providers, must take the role of supporters encouraging students to think and analyze things. Moreover, they must be able to use tools to acquire knowledge including knowledge about IT, research, and Knowledge Management, and know how to integrate these in their teaching. The Ministry of Education has a policy to train teacher and requires that teachers receive training every two years by certified government and private organizations and attend seminars and other kinds of training. This is a requirement and criteria for evaluation and promotion. However, the project and teaching evaluation of primary school teachers focusing on proficiency including knowledge, skills, and characteristics and attitudes showed that most teachers have knowledge but with static teaching habits. They mostly lecture, describe, and provide contents which are not close to real life. Training is one device to resolve the problems. Moreover, skipping classes for trainings is another concern of the study as it may affect teaching qualities. As a result, the researcher as the main purpose integrated training courses development processes with the concepts of Knowledge Management (KM), which has variety of techniques. The training courses are comprised of knowledge acquisition, knowledge construction, knowledge storage and retrieval, and knowledge transfer and utilization. The training courses emphasize on using Learning Management System: LMS, a system which adopts online multimedia with text, numbers, pictures, and audio clips and aims at not preventing the teachers from their teaching hours. It also helped them to learn faster and more efficiently and create a knowledge-based society. This way could enhance and encourage student learning because online multimedia can be accessed easily by both teachers and students. In addition, as seeing the importance of the variety of local culture in Surin province, the researcher chose the province

as a locale to conduct the research. Thus, the teacher training courses were developed to assist teachers to produce and implement the multimedia based on the local culture of Surin province. This aims at providing a familiar learning context to assist students to gain knowledge and see the importance of their culture.

2. Objectives of the study

2.1 To develop teacher training courses based on the concepts of Knowledge Management to increase efficiency of multimedia production about local culture of Surin province

2.2 To study:

2.2.1 The efficiency of teacher training courses based on the concepts of Knowledge Management to increase efficiency of multimedia production about local culture of Surin province

2.2.2 The understanding about the training courses based on the concepts of Knowledge Management to increase efficiency of multimedia production about local culture of Surin province

2.2.3 The efficiency of teachers in producing multimedia about local culture of Surin province

2.2.4 The satisfaction of teachers about the training courses based on the concepts of Knowledge Management to increase efficiency of multimedia production about local culture of Surin province

2.2.5 The satisfaction of students in using the multimedia to learn about local culture of Surin province

2.2.6 The opinions about the teacher training courses of people who involve in education

2.3 To study contributing factors and obstacles to the teacher training courses development based on the concepts of Knowledge Management to increase the efficiency of multimedia production about local culture of Surin province

3. Methodology

3.1 Research Design

Quasi-Experimental Design with one group pretest posttest design was used in the research.

3.2 Sampling

The researcher used purposive sampling in which samples were fifteen teachers who are teaching the third level (age groups 12-14). They were recruited considering application forms, criteria, interests, knowledge, experience, and their accessibility to computers and Internet. Six people who involve in education were also chosen by using the purposive sampling. Simple random sampling was used to choose one hundred and fifty students.

3.3 Variables

3.3.1 Independent variable was the teacher training courses

3.3.2 Dependent variables were:

3.3.2.1 Efficiency of the teacher training courses

3.3.2.2 Knowledge and understanding of the teachers about the training courses

3.3.2.3 Efficiency of the teachers in producing the multimedia

3.3.2.4 Satisfaction of the teachers with the training courses and the implementation

3.3.2.5 Satisfaction of the students with using the multimedia produced

3.3.2.6 Opinions from people who involve in education

3.3.3 Contributing Factors and obstacles to the efficiency of the teacher training courses

3.4 Research methods

The concepts of Knowledge Management were integrated into the process of the teacher training courses development, which were divided into four stages:

Stage 1 Knowledge acquisition. In this stage, basic information was analyzed by studying document, concepts, theories, related literature, local culture, efficiency, readiness, necessary to use technology, online learning aids,

multimedia, and related factors.

Stage 2 Knowledge creations. The researcher developed five teacher training courses: Course 1 Basic Knowledge about Multimedia, Course 2 The survey on local culture, Course 3 Multimedia Production, Course 4 Learning Management, and Course 5 Evaluation.

Stage 3 Knowledge storage and retrieval. The training courses were experimented using a one group pretest posttest design with two stages including a try-out and an experiment with real samples. The try-out took place in a training room for three days to give knowledge and create understanding about the training courses. The experiment with the real samples was online constructed for six months. The teachers took a pre-test and post-test. The researcher monitored the training for six times.

Stage 4 Knowledge transfer and utilization. There were evaluation and interviews in this stage. The satisfaction of the teachers and students and opinions from people who involve in education were evaluated. The interviews focused on contributing factors and obstacles to the training courses.

3.5 Research instruments

The research instruments were interview, evaluation forms on the efficiency of multimedia production, tests of knowledge and understanding about the training courses, and satisfaction and opinion survey. The interview questions, evaluation form, test, and questionnaire were tested for efficiency and with the Index of Congruence (IOC) = 1. The test was with the level of difficulty between .20 - .80, power of discrimination $\geq .20$, and reliability = 0.96 (KR-20).

3.6 Data collection

3.6.1 Explain and create understanding about the teacher training courses.

3.6.2 Provide the training for six months and monitoring for six times.

3.6.3 Evaluate the training using the research instruments.

4. Analysis

Statistical software for social sciences was used in the data analysis. The analysis was carried out:

4.1 examining the process for the efficiency of the teacher training courses / result (E1/E2)

4.2 using the T-score to analyze and compared the teachers' knowledge and understanding before and after the training

4.3 using Mean and Standard Deviation to examine the teachers' efficiency in producing multimedia.

4.4 using Mean and Standard Deviation to analyze the satisfaction of the teachers to the training courses.

4.5 using Mean and Standard Deviation to analyze the satisfaction of the teachers in using the multimedia.

4.6 using Mean and Standard Deviation to analyze the satisfaction of the students in using the multimedia.

4.7 using Mean and Standard Deviation to examine the opinions of the people who involve in education about the training courses.

4.8 using content analysis to examine the contributing factors and obstacles to the efficiency of the teacher training courses and the utilization, and then presented the results in a composition form.

5. Research Results

5.1 The efficiency of five teacher training courses, comprised of Course 1 Basic Knowledge about Multimedia, Course 2 Survey on local culture, Course 3 Multimedia Production, Course 4 Learning Management, and Course 5 Evaluation, was 86.67/89.33, which met the standard of 80/80.

5.2 The teachers gained more knowledge after the training with statistic significance of .05.

5.3 The teachers had high ability in multimedia producing.

5.4 The teachers were strongly satisfied with using and implementing the multimedia produced.

5.5 The students were strongly satisfied with using the multimedia produced and learned a lot about their local culture.

5.6 The people who involve in education considered the benefits of teacher training courses to be at the highest level.

5.7 The contributing factors were support from school administrators, the teachers' determination to improve their

jobs, and the students' learning motivation. The obstacles were the teachers' different technology proficiencies and backgrounds as well as their heavy working loads.

6. Discussions

The followings are discussions based on the findings of the study:

6.1 The teacher training courses met the efficiency criterion at 86.67/89.33 which was in accordance with the set criterion of 80/80. This may have resulted from the course development process included the information gathered from teachers questioned about teaching and learning methods, and meetings, workshops and seminars which required teachers to attend at distanced venues. Therefore, these developed teacher training courses assisted teachers to improve the teaching and learning, and resolved time loss due to meetings, workshops and seminars. This is in accordance with Rowntree (1990:317) who stated that training was a systematic development for individuals in order to do the tasks better. Furthermore, the teacher training course development was made systematic by implementing knowledge management aspects namely knowledge acquisition, knowledge creation, knowledge storage and retrieval, and knowledge transfer and utilization. This is in accord with Panich (2008: 31) who referred to knowledge management as tools for achieving goals in the developments of individuals, organizations, and communities. The efficiency of the teacher training courses might have been because the development of the courses conformed to the advantages of the online training courses which is offering control over time and place to study as well as learner's pace of learning (Sanyal, 2001:10). The courses had been gone through the specialist reviews process, tryouts, and improvement, which might have also resulted in the efficiency of the teacher training courses.

6.2 Teacher understanding about the training courses after the training was higher than it was before the training at the significant level of 0.05. This might have resulted from teachers being learners learning by doing as well as learning through online courses which allowed them to learn at their own paces. This is in accordance to the study of Gelfand (1991) that learners' interests increased through learning via computer where the flexibility of the lessons allowed interactions and learning responses. It is also in accordance to the study by Hongdokmai (1999) on the development of multimedia computer training lessons for bank personnel which the findings revealed that the learning achievements of learners who studied by multimedia computer lessons were higher than those who trained through regular bank training at the significant level of 0.05.

6.3 The teacher efficiency in producing multimedia materials was at the high level. This might have been because the teacher training courses were effective as they provided both knowledge and practices; arranged the levels of difficulties from low to high; stimulated teachers' background knowledge and experiences and integrated with new knowledge which is in accordance with Merrill (2002: 475) who proposed that e-learning lessons should stimulate learners' background knowledge and experiences and integrate new knowledge and skills with daily life. For the finding that the teachers' abilities to insert multimedia, lights, colors, sounds, and images into the lessons were at the lowest levels, it might have been because these were complicated techniques which required several steps to complete; teachers would have needed time to learn and understand the application as Malithong (2005: 127) stated that in order to present multimedia learning materials with the implementations of hyperlinks, texts, images, and other techniques may require longer time and several steps in completing the tasks.

6.4 Teachers' satisfactions towards the training courses were at the highest level. This might have resulted from the training course being related to teaching and learning which were the teachers' duties and they were also the provision for teachers' self improvement free of charge. This was in accordance with Herzberg's motivation theory (Herzberg, 1959: 113-115) that job satisfaction will lead to effectiveness as individuals see self developments as the opportunities to progress at work as well as gain more professional skills.

6.5 Teachers' satisfactions towards implementing multimedia lessons were at the highest levels. This could be resulted from teachers themselves producing multimedia lessons starting from planning to implementing them. Teachers changed their teaching routines and had more time to prepare teaching and learning as Malithong

(2005:153) mentioned the advantages of online lessons that they help providing more preparation and teaching time for teachers as well as stimulate students by providing fast access to the lessons via the Internet.

6.6 Students' satisfactions towards learning local culture via multimedia were at the highest levels. This might have been because students studied from multimedia lessons online furnished with images, and sounds which helped them to learn happily without anxiety or embarrassment if they could not answer the questions. Therefore, they were motivated to repeat the lessons until they could pass the achievement criteria. The result is in accordance to that of the study by Pookduang (1999:75) that teaching with the emphasis on activities which allowed students to face problems, practice, and gain direct experiences according to their own abilities were relevant to students' needs and interests leading to happy learning situations.

6.7 The opinions of teachers and people who involve in education were ranked at the highest level. This might have been because these courses improved teachers' abilities according to their needs and was up to date. There was implementation of technology; therefore, teachers did not have to spend a lot of time travelling to the training venues but they could attend the training any places and any time. This provided changes to their teaching and learning activities and enabled them to have modern teaching materials and they could use the tasks they had done through the courses to supplement their own professional evaluations. This is in accordance with Section 65 of the National Education Act B.E. 2542 (1999) and Amendments (Second National *Education Act* .B.E. 2545 (2002) which states that steps shall be taken for personnel development for both producers and users of technologies for education so that they shall have the knowledge, capabilities, and skills required for the production and utilization of appropriate, high-quality, and efficient technologies (*Office of the National Education Commission, 2002: 30*). This is also relevant to teachers' proficiencies in curriculum and learning management stated by the Office of Basic Education Commission (2010: 18-19) that teachers should be able to implement learning resources and indigenous knowledge available in their communities in teaching and learning they provide, utilize various materials, innovations, and technology to appropriately support learning activities, and use computer technologies to produce teaching and learning materials and innovations.

6.8 The discussions on supporting factors and obstacles on the teacher training courses, development of the courses, and their implementations are as followed:

6.8.1 Supporting factors. Teachers participated in the study received support from school administrators. There were ongoing follow-ups both as field visits and online. There were teachers' needs to improve themselves and advance their jobs as well as enhance students' motivations. This might have resulted from the study was well and systematic developed, and the training courses were efficient, appropriate for the time being, and relevant to the achievement based working proficiency set by the Office of Basic Education Commission (2010: 18-19) that teachers shall be eager to learn about learning management, acquire new professional knowledge for self development, look for opportunities for self development, e.g., attending meetings and seminars and participating in technical study visits.

6.8.2 Obstacles. The teachers participating in the study were of different technology proficiencies and backgrounds, and engaged in heavy working loads. In arranging trainings, there have to be pre-tests and leveling up the basic knowledge and practices according to adult learning theory by Marriam and Cafferella (1991 : 249) which stated that learning readiness in adults is closely related to the developmental tasks of their social roles. To enhance their best learning is to bring the best in each individual to use at full capacity

7. Recommendations

7.1 Recommendations for implementations

7.1.1 In order to implement training courses, teachers need to be well prepared on material production planning and implementing materials by encouraging students' involvements. On utilizing online lessons, teachers should arrange follow-up schedules to monitor students' learning and providing advice.

7.1.2 Students should be prepared on basic computer and Internet knowledge as well as how to conduct self-directed learning prior to studying online lessons.

7.1.3 School administrators should provide support for online learning in terms of adequate and effective Internet

networks and computer sets.

7.2 Recommendations for future research

There are other issues that might be pursued including the followings:

7.2.1 A development of multimedia learning materials in teaching and learning in different disciplines or skills.

7.2.2 A development of integrated training courses in schools along the border of Thailand.

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